

MANY pieces of modern furniture have their inspiration in the patterns that scientific research has plotted: patterns not normally seen by the unaided eye. The orbits of electrons and the behavior of airflow have given impetus to much contemporary design. This chair would fall in this category for it had its beginning in parts of a quadradar in use at airports. Despite its rather austere origin, it still looks like an invitation for a human to sit down and it does not go back on its promise because it is, in fact, a very comfortable chair. Its light weight, ease of construction and economy in materials are other favorable features.

All the parts with the exception of the back can be cut from a single $\frac{3}{4}$ " thick plywood panel 24" x 48". Panels this size are available, but if more than

one chair is to be made, large panels that are multiples of this size can be utilized with a resulting saving in cost.

Plywood faced with birch would be a good choice to make. It takes paint well, or it can be bleached or finished natural. Birch, good one side, unlike many other cabinet panels has the same wood on the back and, while there may be small imperfections, the parts usually can be arranged to avoid these spots. Plywood core rather than lumber core should be used so that the parts will be equally strong in all directions.

One piece of $\frac{1}{8}$ " thick birch plywood 9" x 18" will be needed for the back. Small pieces of $\frac{1}{8}$ " thick plywood are available at almost all supply houses.

Make patterns for all the parts on wrapping paper. The back is enlarged

by means of the graph squares. All of the other parts are developed by establishing base lines, projecting perpendiculars and drawing parallels. With the points thus determined, straight lines are drawn connecting them, or arcs are described as shown. The large arcs—that on the seat and those on the back forms—can be drawn with a spline of wood with small holes in it at the proper points—one for the pivot, which can be a small nail, and the others to admit a pencil point. Notice that the $\frac{1}{16}$ " width of the notches where the back forms and the uprights cross will eventually be opened up by beveling to accommodate each other.

The part layout diagram shows what is probably the best way to arrange the different elements on a 24" x 48" panel. Cut out the blanks with a handsaw or on the band saw and

paste the patterns on them with rubber cement. As the two sides are identical, they can be nailed together for cutting out simultaneously. Locate these nails in places that will fall off when the jigsawing is completed. Use a jigsaw blade with 16 or 18 teeth per inch for cutting out the parts.

If the bevels are cut on the jig saw by tilting the saw table, the two blanks for the sides will have to be separated before this work is done. Make sure that there is a left and a right side. The bevels on each of these will slant in opposite directions. If both sides are made identical, one of them is useless and will have to be made over.

Save the waste wood from the inner curves of the back forms. These will be used as molds in gluing on the back. Carbon tetrachloride (Carbena) can be used to remove the patterns.

Sand all the parts and begin the assembly by gluing together the back forms and sides. Check to see that the seat fits properly.

The drawing of the front rail really shows only a blank, which can be either of solid wood or plywood. Place this blank in its notches and mark the angles of the ends and the top as shown in a photograph. Cut these surfaces and then glue and screw the front rail in place. Use two $1\frac{1}{2}$ " No. 7 flathead screws at each end. Counterbore $\frac{1}{4}$ " and cover the heads with wood plugs. Glue and screw the seat in place, using the same size screws and covering the heads similarly. Use two screws through each back leg into the seat extension and three screws down into the front rail.

The inner edges of the side uprights will have to be filed down so that they

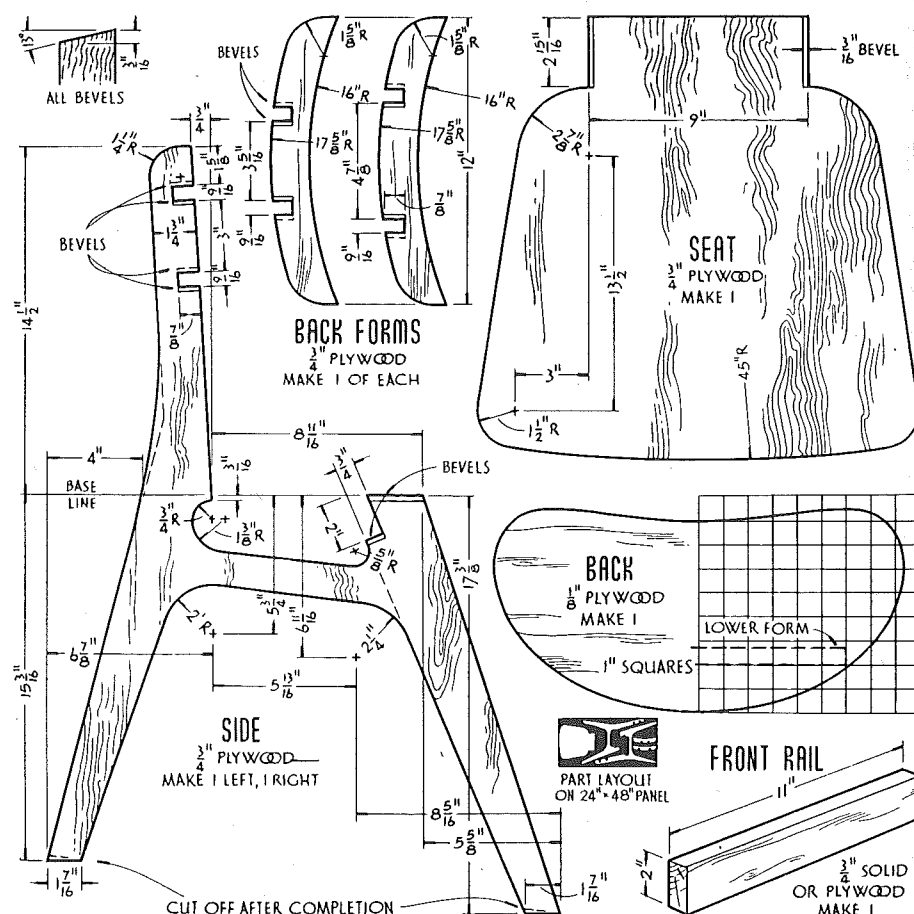
coincide with the curve of the forms.

In order to locate the back accurately on the back forms, draw center lines on all the parts and line up these points. The bottom edge of the lower form will just touch the edge of the back as shown in the drawing. Glue alone will be strong enough to hold the back in place. Use the waste wood from the inner curves of the forms to act as a mold while the back is in clamps.

Sand the entire chair and soften all the edges. Stand the chair on a level surface and with a bit of wood $\frac{3}{16}$ " thick mark the angle at which the bottoms of the legs will have to be cut. After this operation has been performed, apply glides to the legs. If the chair is to be painted, use egg-shell enamel and follow the system described by the manufacturer.

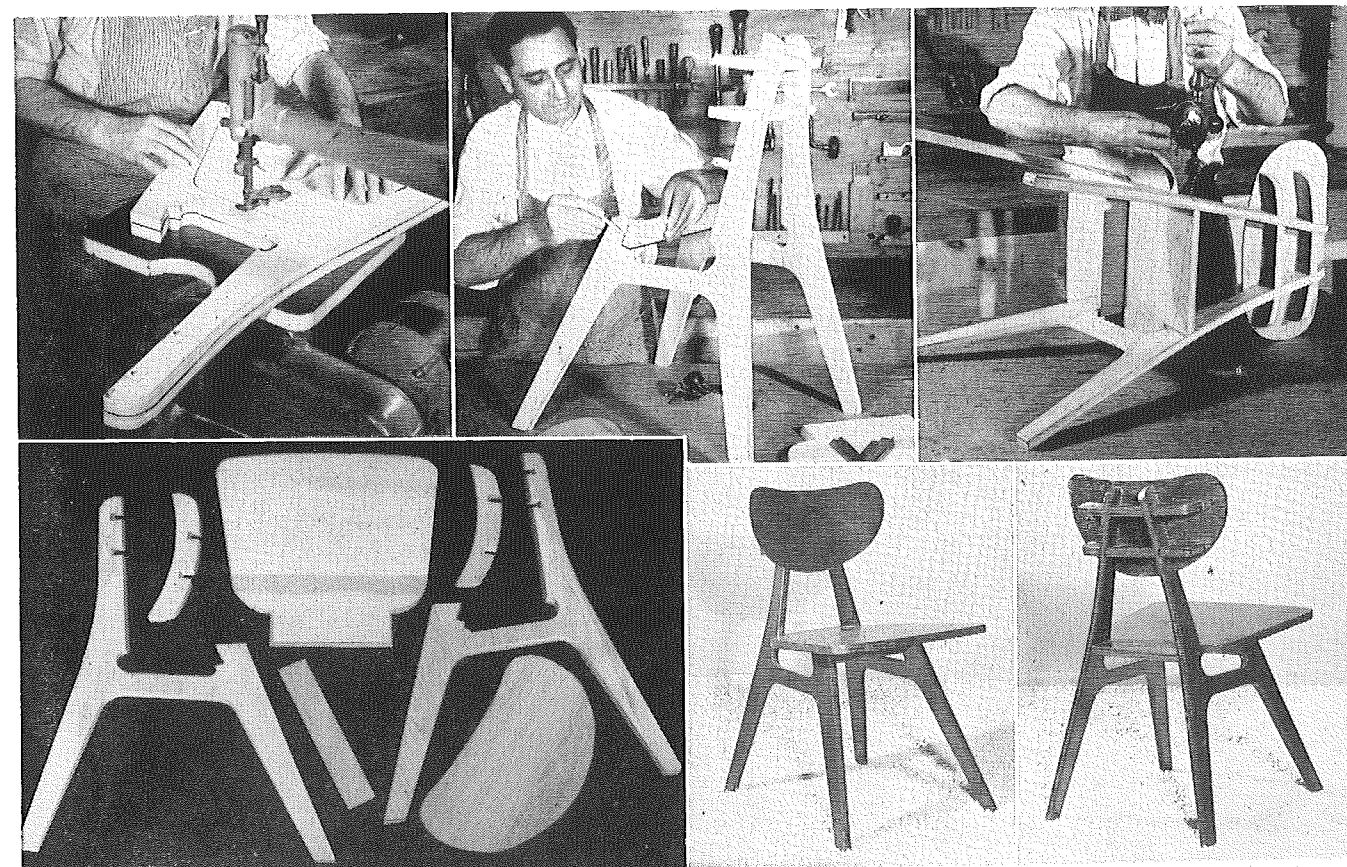
Radar-inspired design for a distinctive

By ARTHUR COLLANI



modern SIDE CHAIR

It's comfortable . . . has only a few parts sawed from plywood . . . costs little for material . . . and, besides being easy to make, is sturdy yet light in weight



Top left, the two sides can be jigsawed at the same time, although the bevels have to be cut after they have been separated. Top center, marking the front rail. Top right, drilling holes to secure back of seat

Bottom left, the parts before being assembled. They are all $\frac{3}{4}$ " thick plywood except the back, which is cut from birch plywood $\frac{1}{8}$ " thick. Bottom center, finished chair from front. Bottom right, the back view